VOLUME 53 MAY, 1956 NUMBER 3

CONTENTS

USE OF CHLORPROMAZINE AND RESERPINE
IN MENTALLY DEFECTIVE CHILDREN
Mortimer Garrison, Jr., Ph.D. - - - - - - 55

AN INVESTIGATION OF RETARDED BRAIN-DAMAGED
CHILDREN WITH DELAYED SPEECH AND LANGUAGE
Bernard B. Schlanger, Ph.D. - - - - - - - 64

IN MEMORIAM - GUY P. BIBLE - - - - - - - 75

HAPPINESS FIRST
. . . ALL ELSE FOLLOWS

Springtime
at the
Training School

# USE OF CHLORPROMAZINE AND RESERPINE IN MENTALLY DEFECTIVE CHILDREN

MORTIMER GARRISON, JR., Ph.D.

*Chief Psychologist*
*The Training School*
*Vineland, New Jersey*

In the past two years considerable publicity has been given to drugs used to affect the mood and behavior of mental patients. The two most frequently referred to are chlorpromazine and reserpine. At the onset it might be useful to point out that in the review of psychiatric progress of 1954, the statement was made that chlorpromazine and reserpine are in the forefront in both psychiatric and public attention. (7) In the review for 1955 it was said that there had been much experimentation but also much "rash, indiscriminate publicity." (8) In contrast to the large numbers of papers reporting the effects of medication in adult psychiatric patients, there is not too much information as yet available reporting controlled experimentation on the effect of these medications in mental deficiency. There are additional studies in progress, as yet unpublished, which should considerably expand this information.

Davies (3) reported the use of chlorpromazine administered orally over a period of 9 months. The daily dosages ranged from 75 to 400 milligrams. Of 32 cases treated, 5 improved dramatically, 19 improved less distinctly and 6 failed to respond. He commented that low-grade defectives improved more commonly than high-grade. In those improved, destructiveness and aggressive tendencies were noticeably diminished and hyperkinetic activity ceased. This report was from an institution in England charged with the care of mental defectives who were aggressive, destructive, or subject to self-mutilation. Nace, Williams, and Rapaport (6) reported on the use of reserpine stating that after 3 months four patients had shown such encouraging results as to cause the authors to increase and continue the study. Gatski (5) reported on the use of chlorpromazine in the treatment of emotionally maladjusted children. In this study 9 boys, ages 6 to 13, living in a residential treatment center for maladjusted children, were started orally on 10 milligrams per day and were gradually increased to 40 milligrams. One child received 40 milligrams 4 times daily. All 9 showed improvement.

The effect of medication lasted from 10 to 21 days. It should be noted that these were acutely disturbed and chronically acting out children. Flaherty (6) reported on 16 patients, each of whom "was a chaotic focus of aggression and acting out behavior." These patients became more controlled, less defiant and better able to accept limits. Bair and Harold (1) studied the effect of chlorpromazine in ten hyperactive mentally retarded children. They chose the 10 most hyperactive in a training school. The behavior of these children was characterized by temper tantrums, boisterousness, fighting, and occasional destruction of property. These ten children had made a minimal adjustment to classrooms, job placement and cottage life. There were 7 boys and 3 girls with ages ranging from 7-7 to 20-3. The mean age of the group was 13-2. This group was matched by a control group with the same sex ratio and a mean age of 13-1. Before medication the study group achieved a mean score of 53.7 from the Columbia Mental Maturity Scale. The control group achieved a mean score of 53.5. The dosage was 75 milligrams a day for a period of 60 days. At the end of this time both groups were re-tested. The mean score of the children who had received chlorpromazine was 64.1, an average increase of 10.4 points being reported per subject. The mean score of the control group was 54.0. It was also noted that the children under medication slept better, quieted down, and were given highly favorable reports from all placement areas. The increase in the mean Mental Maturity Scale score was attributed to the removal of "severe emotional and nervous disorders" hampering the expression of the child's potential.

By private communication, reports from other institutions utilizing these medications suggest that they do have value in the treatment of over-active, aggressive, and difficult children. There appears to be a reduction of hyperactivity and aggression and a better acceptance of constructive routine and training. That summary statement emphasizes the degree to which these medications may have their role in quieting both adults and children who are disturbed, but it must be emphasized that there is no evidence to suggest that they offer any cure either for emotional disturbance or for mental deficiency. If an individual is disturbed, through appropriate medication he may become more approachable and amenable to conventional forms of psychotherapy. As reported above, because of the decrease in interference from emotional pressures, he may be able to perform better and on a test show more clearly what his basic capacity may be.

This conclusion is emphasized as one reviews the published reports on the use of drugs in emotionally disturbed adults. Chlorpromazine was introduced in 1954 after extensive previous work in England and on the Continent. One report from England on a large number of patients states that noisy, restless patients may become quiet and cooperative. A study of almost 1,000 patients again speaks of the control of agitation and of anxiety but points to the improvement in rapport which makes psychotherapy possible in many instances.

Both chlorpromazine and reserpine require medical administration. Both are accompanied by concomitant actions and side effects which may range from unwanted drowsiness to the development of Parkinsonian symptoms, jaundice, and hypotension. These side effects are usually reported to be readily reversible if recognized early enough.

In addition to their calming effect both drugs are reported to have a potentiating effect on other medications. In addition, it has been suggested that both chlorpromazine and reserpine be used at the same time to complement each other. The use of chlorpromazine has been reported with disturbed epileptic patients where the effort was to increase the effect of the anti-convulsive medication (2). It was concluded that chlorpromazine was highly effective in controlling behavior disturbances associated with epilepsy. In 6 acute excitement states there was relaxation within 30 to 45 minutes following the injection of 100 milligrams. Chronically disturbed patients became quieter, more relaxed and cooperative. There were fewer outbursts of temper, and less destruction of clothing and linen, and window panes.

Both chlorpromazine and reserpine have been used at The Training School for over a year. These drugs have been prescribed for children who were disturbed and in effort to break through what appeared to be withdrawn states. Disturbance means difficulty with others together with subjective distress, anxiety, depression, sleep disturbance, or outbursts such as throwing a plate full of food on the floor.

These medications have been used clinically for treatment and this has quite frequently involved increased attention and supportive therapy. The results presented in Table I show differences from person to person in age, intellectual levels, diagnosis, and dosages not compatible with neat experimental design. For such reasons, what follows are clinical impressions.

## Table I

Background information and estimate of the results of treatment with chlorpromazine and reserpine in 25 cases

| | Age | IQ | Diagnosis Organic† | Diagnosis Psychiatric | Drug | Initial Dosage | Total Dosage | Total Mos. | Total Days | Impression of Outcome | Psychotherapy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 6-6 | 50* | ? | Autism | C | 40 mg. | 1,330 | 1 | 5 | + | |
| 2. | 9-9 | 31* | ? | Child Schiz. | C | 30 mg. | 8,880 | 9 | 6 | + | |
| 3. | 12-1 | 57 | + | Child Schiz. | R | 0.3 mg. | 537 | 9 | 25 | + | |
| 4. | 12-6 | 52 | + | Personality disorder | R | 0.2 mg. | 31 | 5 | 0 | ? | |
| 5. | 13-1 | 45 | + | Schizophrenia | R | 0.75 mg. | 263 | 4 | 18 | + | |
| 6. | 13-4 | 30 | + | Autism | C | 20 mg. | 12,495 | 7 | 22 | 0 | |
| 7. | 14-3 | 52 | ? | Prepsychotic | C | 75 mg. | 6,325 | | 20 | ? | |
| 8 | 15-8 | 55 | ? | Defective ego state | R | 0.75 mg. | 425 | 8 | 10 | 0 | |
| 9. | 15-8 | 66 | + | Defective ego state | C | 30 mg. | 1,540 | 2 | 2 | 0 | |
| 10. | 15-10 | 45 | ? | Defective ego state | C | 75 mg. | 29,050 | 7 | 9 | 0 | |
| 11. | 16-11 | 80 | ? | Psychoneurosis | C | 75 mg. | 4,970 | 2 | 21 | 0 | |
| 12. | 19-6 | 34 | Mongoloid | Personality disorder | C | 60 mg. | 18,505 | 2 | 23 | ? | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13. | 19-7 | 52 | ? | Psychoneurotic | C | 75 mg. | 6,000 | | 28 | ? | |
| 14. | 20-11 | 44 | ? | Defective ego state | R | 0.75 mg. | 589 | 5 | 24 | + | + |
| 15. | 21-1 | 64 | + | Psychoneurotic | C | 25 mg. | 15,400 | 4 | 28 | — | |
| 16. | 22-3 | 63 | + | Defective ego state | R | 1.0 mg. | 149 | 2 | 9 | 0 | |
| 17. | 26-10 | 47* | ? | Schizophrenia | R | 0.75 mg. | 100 | 7 | 11 | + | + |
| 18. | 27-5 | 31 | + | Prepsychotic | C | 30 mg. | 27,930 | 5 | 4 | + | + |
| 19. | 27-7 | 33 | + | Personality disorder | R | 0.1 mg. | 96 | 6 | 23 | ? | |
| 20. | 28-10 | 69 | ? | Psychoneurotic | C | 50 mg. | 5,375 | 1 | 22 | 0 | + |
| 21. | 32-6 | 69 | + | Depressive psychosis | C | 75 mg. | 4,125 | 1 | 25 | + | + |
| 22. | 36-7 | 57 | ? | Psychoneurotic | C | 20 mg. | 23,660 | 8 | 28 | ++ | + |
| 23. | 37-11 | 36 | ? | Agitated depression | C | 300 mg. | 52,150 | 4 | 20 | + | + |
| 24. | 38-2 | 22 | + | Psychotic | C | 20 mg. | 6,880 | 11 | 14 | + | + |
| 25. | 39-3 | 66 | ? | Psychoneurotic | R | 0.5 mg. | 253 | 8 | 7 | + | + |

* Estimated.

† Presence of positive physical factors is shown by a +; a question mark indicates a questionable finding which may actually be unrelated to the behavior.

Table I shows the background and treatment together with an estimate of the effect of treatment in 25 of our children. The range of dosage has been 0.1 to 8.0 milligrams per day of reserpine; chlorpromazine has been given in quantities of from 10 to 550 milligrams per day. Because of the undesirability of side effects, the general procedure has been to start at a minimal level and to slowly increase to tolerance. As more information became available, one case (case No. 23) was started at a relatively high rate and then the dosage was adjusted as seemed clinically appropriate.

Of these 25 there were 3 and possibly 4 cases in whom side effects have been clearly noticed. In each instance the medication involved was chlorpromazine. The first (case No. 20) was a girl who over a period of 7 weeks received 5375 milligrams of chlorpromazine. At the highest dosage of 225 milligrams a day, she complained of dizziness, of her face not feeling right, of being unable to walk, and on examination showed signs of Parkinsonism. These symptoms quickly remitted when medication was withdrawn. The second case (case No. 11) was also a girl who over a period of 11 weeks received 4970 milligrams at the highest rate of 200 milligrams per day. Her medication was discontinued when she was reported to be vomiting, dizzy, and to be having difficulty in walking. These symptoms also promptly disappeared. The third case (case No. 15) in which there is some question, was a boy who entered The Training School under prescription from his local physician and who while under our care over a period of 24 weeks received 15,400 milligrams at a peak dosage of 400 milligrams per day. Before going home for Christmas vacation he complained of being drowsy, falling asleep, and of having tremors in the right arm. It was observed that when he was not being questioned and when his attention was not on the subject, no tremors were noticed. He was taken off medication and on return from vacation he seemed less drowsy, spryer, and more content. The fourth case (case No. 6) is a boy who over a period of 31 weeks received 12,495 milligrams. With dosage at 300 milligrams per day he developed a dermatitis. This cleared up within a few days after the medication was withdrawn. A week following withdrawal he was again put on medication at the rate of 75 milligrams per day. The dermatitis reappeared. When medication was withdrawn the second time, the dermatitis again cleared up.

There have been no other cases where it was felt that medication had to be withdrawn. In a few instances, medication was reduced to prevent excessive drowsiness.

The clinical impression of the behavioral changes during the period of medication is shown in Table I in the usual manner. A plus rating means that the child became more amenable, periodic outbursts were controlled, and he no longer showed signs of distress. A question mark indicates that although there had been no marked change, the child had stabilized. In some instances it was felt that some more marked pathology may have been contained. A zero indicates that no observed change took place.

In the column headed "Psychotherapy" is an indication as to whether or not the child received additional support during this period. The terms "psychotherapy" and "support" are used quite broadly in this instance. This usage appears legitimate in that additional visits with friendly concern indicated by the staff member have a definite supportive aspect in this population. In some of these cases more formal therapeutic sessions were held during the period covered in Table I.

In 12 cases it was felt that there were positive signs; in 5 cases there was some questionable improvement; in 7 there was no improvement; and one case appeared to become slightly worse while under medication. There appears to be little relationship in this table between improvement and the type or amount of medication, the presence or absence of definite known organic conditions, the psychiatric diagnosis, and the IQ. There is an apparent tendency for the younger and older cases to show more definite signs of improvement but this is confounded by the fact that the older improved cases also received additional support. Of the 12 cases in which there appeared to be improvement, 8 had additional support.

The three younger children appear to have moved outward toward other people and the environment instead of being inaccessible and thus presumably lost in their own fantasies. As is frequently true with a regressed, autistic child, this movement toward others took the form of unpredictable aggression (he suddenly hits another child) or an ambivalent reaction toward the cottage parents (he may want to be with the cottage mother, yet from time to time unexpectedly hits her or pulls her hair). In our setting such behavior presents a problem in management and in a sense it would appear that the child may have become more disturbed than had been the case before medication. That this need not be true is indicated by one boy who appears now to be capable of forming an emotional relationship although it is one of ambivalence, whereas before treatment he had been cold affectively and there had been

considerable question as to whether or not it was possible for him to react in this fashion.

The general tendency in improvement was for the individual simply to be more able to accept and to be accepted by others. He is no longer the problem he was, or he feels better. These are small differences rather than basic changes in personality, yet they are of considerable importance in making life more worthwhile to the individual. The amount of change noted in case No. 15 previously described was also a matter of degree. A minus rating was given in this instance. It is possible that the effect of medication was to reveal pathology otherwise held in check. In contrast to others who reverted to their previous status when medication was withdrawn, he appeared better. Unfortunately, we cannot say it was medication which produced the symptoms, nor can we say whether or not the visit home produced the improvement in his adjustment. At all events, medication did not appear to have helped.

Our experience with these children supports the notion that these medications may beneficially affect emotional disturbance and make the individual more accessible to treatment as described in the literature. How successful such a program might appear may depend upon the extent to which completely therapeutic management can be instituted. Because The Training School is selective in its population, it may be that we have not actually been using these medications in the sort of population wherein the most dramatic results are to be seen. We do not have a large number of low grade, destructive, aggressive, self-mutilating children. Nor do we have cases of acute excitement and chronic disturbance. It may be that we have been asking more of these new drugs than they may reasonably be expected to produce.

It would appear that some children are positively affected and to the extent that emotional disturbance has been blocking the expression of their intellectual potential they may be helped to a fuller use of this capacity. The importance of this need not be emphasized but to realize the chance offered by medication, a therapeutically-oriented management program is essential.

## REFERENCES

1. Blair, M. V. & Harold, W. Efficacy of chlorpromazine in hyperactive mentally retarded children. *A. M. A. Arch. Neurol. Psychiat.*, 1955, 74, 363-364.
2. Bonafede, V. I. Chlorpromazine (Thorazine) treatment of disturbed epileptic patients. *A. M. A. Arch. Neurol. Psychiat.*, 1955, 74, 158-162.
3. Davies, T. S. Chlorpromazine in mental deficiency. *Lancet*, 1954, 2, 819.
4. Flaherty, J. A. Effect of chlorpromazine medication on children with severe emotional disturbances. *Del. State Med. J.*, 1955, 27, 180-184.

5. Gatski, R. L. Chlorpromazine in the treatment of emotionally maladjusted children: a preliminary report. *J. A. M. A.*, 1955, 157, 1298.
6. Nace, R. H., Williams, D. B., & Rapaport, W. Reserpine (Serpasil) in the management of the mentally ill and mentally retarded (a preliminary report). *J. A. M. A.*, 1954, 156, 821-824.
7. Wortis, J. Review of psychiatric progress 1954, Physiological treatment. *Amer. J. Psychiat.*, 1955, 111, 515-517.
8. Wortis, J. Review of psychiatric progress 1955, Physiological treatment. *Amer. J. Psychiat.*, 1956, 112, 526-529.

## DR. DELP IS GUEST SPEAKER AT IN-SERVICE COURSE IN JERSEY CITY

Dr. Harold A. Delp, coordinator of educational activities at The Training School, addressed sixty elementary and secondary school teachers in Jersey City on March 13. He discussed the education of the mentally retarded.

The In-Service Course entitled "Teaching the Slow-Learners" was instituted by the Board of Education, Jersey City.

## DR. THOMAS VISITS TRAINING SCHOOL

Dr. David H. H. Thomas, superintendent of the Cell Barnes Colony for Mental Defectives at St. Albans, England, and Mrs. Thomas visited The Training School on April 13 and 14.

Dr. Thomas came to the United States on a three-month tour of universities and institutions for the mentally handicapped, as a special consultant in mental retardation and rehabilitation. The tour is sponsored by the World Health Organization.

Other foreign visitors to The Training School during the past few months were Dr. Cyril M. Franks, psychologist at Maudsley Hospital, London; Mrs. Tara Shastree of Bombay, India; Kyuma Sakamoto, instructor at Kumamoto University, Japan; Bengt Junker, chief of Boy Scouts Organization in Sweden; Dr. Aviva Najar, adviser to institutions for retarded children, Ministry of Welfare, Jerusalem, Israel.

# AN INVESTIGATION OF RETARDED BRAIN-DAMAGED CHILDREN WITH DELAYED SPEECH AND LANGUAGE

BERNARD B. SCHLANGER, Ph.D.

*Speech Pathologist*
*The Training School*
*Vineland, New Jersey*

The young mentally retarded child with a cortical lesion frequently has communication difficulties. The differential diagnosis of his speech, hearing and language disorders often presents a baffling and complex problem to the speech pathologist. The child may hear, but not comprehend what he hears. He may make sounds but be unable to use them meaningfully. His organic predisposition is often obscured by emotional maladjustments and a multiplicity and range of atypical behavior are frequently encountered. The resulting sequelae of brain damage need investigation and defining in order to establish a regimen offering as much habilitation as the organism can profitably accept. For instance, brain-damaged children suspected of drastic under-functioning in oral communication warrant study of their speech behavior. If clues from such a study point the way to a breaking of their sound barriers, other areas dependent on speech and language may open up, thus aiding in the attainment of the potential of the child.

With hearing as a control, speech expression emerges from undifferentiated sounds. Thus, from the ages of one to three years there is a readily discernible growth in the ability of children to comprehend and use speech symbols. Between three and five years of age, children are able to express their needs; they actively attempt to modify their environment through words. On the other hand, many brain-damaged retarded children whose C.A.'s are five or greater are mute or have extremely rudimentary speech. This occurs despite speech musculature capable of performing the fine adjustments needed for speech and a hearing end-organ that seems normal. The failure to develop speech is often over and beyond the expected limitations imposed by a brain lesion.

In exploring delayed communication development, tests and measurements relating to speech and hearing are often difficult to administer to the brain-injured retarded young child because of his atypical be-

havior. We can infer that observations of the speech and listening behavior of these children over an extended period of time offer one of the limited avenues through which we can venture to hypothesize concerning the delayed communication development.

Another possible source of information available for estimating the child's speech potential is the testing of his auditory discrimination. This is the ability to distinguish between sounds or words with differing acoustic and temporal properties and is one of the factors presumed important in speech development. Most children by the age of three have learned to make auditory discriminations which are sufficiently exact to meet the listening demands expected of the average adult (1). On the other hand Strauss and Lehtinen (7) wrote of a weakness or disturbance of auditory perception in brain-injured children that appears unrelated to hearing acuity. Schlanger (5) also found retarded children as a whole demonstrated functional difficulty with the finer distinctions between sounds.

A continual evaluation and appraisal of both the input and output of the retarded brain-injured impaired child's communication network is necessary in order to find the key to unlock his speech potential. A handicapped child with no discernible end-organ pathology should demonstrate in time a correlative development in speech and auditory discrimination, particularly if an extended program of speech therapy were administered. Such a program was established at The Training School. Improvement in speech and auditory discrimination was evaluated after a period of 18 to more than 24 months.

## PROCEDURES AND RESULTS

SUBJECTS. Twelve children with severely delayed speech and language development comprised the study group. All were diagnosed as brain-damaged. No crippling defects were evident in gross body movement or in the finer motor movement of the speech articulators. Chronological ages at initial examinations ranged from 4.8 to 9.8 years with a mean of 7.0 years. Present C.A.'s were from 6.8 years to 12.3 years with a mean C.A. of 9.2 years. The present M.A. range was 2.8 to 5.8 years with a mean M.A. of 3.6 years. I.Q.'s ranged from 29 to 67 with a mean of 41.

Language had progressed to the point where words were recognized as symbols indicating some inner speech. For example, simple directions were comprehended by all. They could respond with symbols indicating "yes" or "no", either verbally or with gestures. Table 1 summarizes the expressive speech level of each child at the initial exam-

## Table 1

### Speech Progress Report — Descriptive Summaries

| Subjects | C.A. at Entrance | Initial Exam | Present C.A. | Present Exam |
|---|---|---|---|---|
| A | 9.8 | Not readily intelligible single syllable responses. Echoes last syllable of stimulus sentence or word. | 12.3 | Slight progress in responsiveness and intelligibility. Limited articulation improvement. Withdraws speech-wise if pressed. Restricted vocabulary and narrow conversational range. |
| B | 4.9 | No words but uses two-syllabled nonsense responses. Extreme distractibility and flightiness. Gestures used to express needs. | 7.2 | Occasional word understood when subject known. Improved sound and word repetition. Greater desire to speak and attempts conversation with vowel-like jargon. |
| C | 5.3 | Nonsense jargon with an occasional clear word. Can produce words in isolation but omits and substitutes in all words. Mute in group situation. | 7.3 | Most of jargon eliminated. Increased verbalization with most of spontaneous speech intelligible. Some improvement in peer interaction in therapy but resents competition and withdraws from communication. |
| D | 6.8 | Retarded speech with complete echolalia. Can produce most sounds adequately. No spontaneous speech responses. Expressive gesture also lacking. | 9.9 | Echolalia persists but perseverative sentences and song snatches used. Articulation is adequate but speech is not used projectively. Behavior changed from withdrawn to aggressive. Occasional spontaneous picture naming. |
| E | 4.8 | Grunts and a couple of consonant sounds comprise output. No meaningful words but some symbolic use of gesture. No imitative responses elicited. Evades communication contact. | 6.8 | Imitates sound and produces some word approximations. Improved responsiveness and contact. Symbol meaning clear only when subject is known. |
| F | 5.8 | No speech. Does not attempt to make sounds. Communication by gesture in which limited meanings are conveyed. | 8.6 | Language at one-word sentence level. Vocabulary of 40 words. Reverts to gestures and grunts when not in therapy. Motivation a problem. |
| G | 8.3 | Spontaneous speech limited to vowel-like grunts, 'no' and violent undifferentiated gestures. Poor adjustment. | 10.2 | Slow but continuing progress in word use. First syllable used primarily. Speech supplanting gesture in one-word sentence, but reverts to gestures. Recognizes and reads written symbols. |
| H | 7.8 | Verbal output limited consistency of jargon with occasional intelligible word. Inattentive and distractible. Perseveration with no attempt at communication. | 9.6 | Able to imitate all speech sounds but spontaneous speech remains the same as at initial evaluation. |
| I | 8.6 | Entire verbal communication consists of one two-syllabled jargon word. | 10.1 | No change in speech. Slight improvement in interpersonal relations. Attempting to communicate by pointing and using jargon word. |

**Table 1**
(Continued)
Speech Progress Report — Descriptive Summaries

| Subjects | C.A. at Entrance | Initial Exam | Present C.A. | Present Exam |
|---|---|---|---|---|
| J | 8.2 | Spontaneous speech jargon with occasional intelligible word or phrase. Initial syllable alone used in longer words. Voice quality infantile. | 9.8 | Articulation clearer but remains infantile and distorted. Withdraws from communication when pressed for oral response. |
| K | 6.4 | Single words used but difficult to understand because of substitutions and distortions. Voice quality infantile and hypernasal. | 8.9 | No change in speech. Low motivation and extreme distractability. |
| L | 7.4 | Speech not readily intelligible. Consonant articulation adequate in isolation. Limited output with mumbling. Emotional lability, hyperactivity and avoidance of eye and physical contact. | 9.6 | Slowly improving with speech intelligible for most part. When situations were structured, expressive speech was less mumbled than previously. However, deviations occur in conversation. Increased responsiveness and emotional lability alleviated. |

ination. This occurred from at least 18 months to 24 or more months preceding the present notations. The language and speech maturation of most of these 12 children was at a level of a one to two year old infant. Seven children utilized occasional vowel-like grunts or a single sound as their total verbal output. Four others used a greater variety of sound but these still were undifferentiated and unintelligible except for an occasional approximated single-syllabled word. One child, Subject D, had the most advanced speech vehicle. Most sounds could be imitated adequately by him. However, even his speech was somewhat indistinct, distorted, and purely echolalic.

When the children were first enrolled in therapy, their communicative attitudes were apathetic with little apparent awareness of speech, or desire to speak. Communication contact was difficult to establish in that withdrawing, negativism, or complete inattention were the reactions to attempts to stimulate speech. Distracting devices and limit testing were habitual. The lack of attention and the inhibited speech of all the children made it almost impossible to do any routine speech or psychological examinations.

Diagnostic therapy was instituted to attempt to clarify the level of communication skills and evaluate the speech potential of these children. While this usually is scheduled for three months at The Training

School, therapy was extended in all cases and has been continued with varying degrees of intensity from 18 months to more than two years. The major goals of therapy have been (a) to attain a level of obedience and responsiveness to speech and oral language symbols so that an awareness of, and a desire for verbal expression might be initiated, and (b) to develop oral communication skills within the framework of the child's potentials.

SPEECH THERAPY. Beginning therapy emphasized ear training. Sound and speech bombardment concentrated on developing a consistent listening attitude and a sound-meaning relationship. Some devices used included recorded and live music with appropriate rhythm and action responses. Other activities included listening to conversation, story-telling, nursery rhymes and babbling. Noise makers and animal noises were used with matching pictures and objects.

On the expressive side, the main emphasis has been the developing of positive attitudes toward speech. Satisfying experiences in class, cottage and speech clinic were related to speech. A typical illustration is Subject B whose vocabulary consisted of one word, *ball*. His most highly developed skill was catching and throwing a ball. Experiences and games were developed utilizing this material. At the same time, phrases such as "throw ball," "me ball," "give ball" and the like were repeated in the attempt to enlarge his verbal output.

As in this case, constant observation indicated what words, sounds, songs or actions would most motivate the other children. This opportunistic therapy seemed the best way to develop optimum speech once a reasonable level of responsiveness was attained. When this was discerned, activities broadened to include babbling, sound imitations, object and picture naming and some ear-phone feedback with tape recorder. When feasible, multi-sensory techniques were employed using mirrors, auditory feedback, manual manipulation, articulator imitation, and resonance feeling. Consistency of response in any activity could not be anticipated from one day to another. The therapist, while empathic and allowing freedom of choice of activities, needed to define and maintain consistent limits.

SPEECH RESULTS. Since the symptom complex stemming from cortical lesion varies to such an extent from one child to another, difficulties were encountered in posing group interpretations. Measurements for the statistical evaluation of their oral expression were also difficult to obtain because of many individual limitations. As such, discussion has

significance only in terms of each defective child's uniqueness. Therefore, a descriptive rather than a statistical approach seemed the most feasible method of presenting the changes, if any, in communication gains. These are depicted in Table 1.

Nine of the 12 children demonstrated gains of varying degree in both speech development and communication responsiveness. The remaining three, Subjects H, I and K maintained the same speech developmental levels. Nevertheless, these three, as well as the other subjects, improved to the extent that communication responsiveness was less restricted.

Subject G, as an example, is a child functioning at a mentally retarded level. There are indications that he might achieve dull normal functioning if speech habilitation accelerates. This would ameliorate both his situational and intellectual dysfunctioning as noted below:

> At entrance, Subject G was 8.3 years old. He had an I.Q. of 50. His communication was carried on by vigorous, undifferentiated pantomime, high pitched screams and aggressive acts. The attempted message was usually dissociated from anything preceding so that meaning was difficult to project. He demonstrated limited attention, even to those tasks he had selected himself. Negativism and temper tantrums were his frustrational outlets. Speech sounds were severely defective and restricted. Two years after entrance and initiation of speech therapy, improved communication and motivation are readily apparent. Flare-ups still occur but are less intense and frequent. Words, or approximations, are now used instead of gesture. He recognizes words and their meanings from print at a much higher level than indicated by his M.A. of 5.0 years. Now that his mode of communication is improving, substantial progress may be anticipated with intensive effort of all involved in his habilitation. However, initial cortical pathology and extremely retarded language development for a C.A. of 10.2 years have established communicative behavior that will seriously impede his acquisition of adequate speech performance.

Somewhat similar communication difficulties were found initially in Subject F, but the behavior problem was less acute. He also used gesture language for the spoken word. Although he is now able to make many sounds, and has a rudimentary speech vocabulary sufficiently large to converse at a concrete naming stage, he stubbornly reverts to gestures unless cued by the therapist. Prognosis is approximately the same as Subject G's, i. e. some speech amelioration, but communication will never attain normal levels.

Subjects C, E, and L also indicated definite speech and language development. The above quintet, consisting of these three and G and F, have also demonstrated improved behavioral adjustment. It is interesting to note that their I.Q.'s were also the highest in the group. Because of the severe delay in language development, these five might with some reservations be classified as congenital, or childhood aphasics or even 'oligophasics' (8). In the course of further development, they might meet the criteria suggested by Doll (3) for his behavior symptom complex, neurophrenia. Whatever the label, further speech development, as well as capacity fulfillment in other areas, are indicated in the above five children.

Hope is not entirely eliminated for the remaining seven children. Slight speech advances were noted in Subjects A, B, D and J. These gains were not as definite as in the first five children discussed, nor did they indicate extensive improvement. Nevertheless, the first goal has been realized. This was an improvement in the communicative attitudes of all the children. With greater motivation, both inner and situational, a higher speech potential is possible than has been envisaged at this point.

Appreciation of each child as a person is the attitude necessary in therapy with these as well as other brain-damaged children who demonstrate marked delay in speech and language development. The suspected cortical disintegration and psychological overlay in these children demonstrate the need for an intensive speech program of from 18 to 24 months in length before a level of responsiveness is approached that is conducive to direct work on speech and oral language symbols.

Auditory Word Discrimination Test. Tests of auditory discrimination have been used as part of a battery of tests to ascertain speech therapy results. Schlanger (6), using nonsense syllables, found increases in sound discrimination scores of 68 retarded children after a year of therapy but the differences were not significant. Mecham (4), testing auditory discrimination by word-picture matching, obtained significant improvement after eight weeks of speech therapy.

A simple choice technique test of auditory word discriminations that were within the abilities of the subjects was used. This was based on a pre-school test of 58 pairs of words used by Templin (9) in children's language studies. Ten word pairs were added bringing the number of items to 68. The pairs of pictures were on 5″ x 8″ white cards. The names of the pictures were one-syllabled and similar except for a

single sound element. Examples of the pairs are, for initial consonants, *k*eys - *p*eas, final consonants, gu*m* - gu*n* and medial vowel change, sh*ee*p - sh*i*p.

The child faced the examiner and was asked to point to the picture the examiner had named. Responses were not accepted until a definite pointing gesture was used. In the first and third trials, the same picture of the pair was named by the examiner. The other picture of the pair was named in the second trial. Repetition of the word by the subject was not encouraged.

The initial series of tests was administered within a ten day period. After eighteen months, the series was repeated. The mean of each series and the differences between the means of the initial and final tests were obtained.

Auditory Word Discrimination Results. The means and the differences between the means of the individual scores in initial and present measure are shown in Table 2. In the initial test, mean scores ranged from 42 to 61 right out of a perfect score of 68 with a total mean score of 49. Final mean scores ranged from 43 to 66 right with a total mean score of 50. Largest individual changes were a loss of six by Subject A from an initial average of 51 to 45 to a gain of five by Subjects B and G with respective increases from 42 to 47 and 61 to 66.

**Table 2**
Mean Auditory Discrimination Scores at the Beginning and End of an 18 Month Interval

| Subjects | Present | | Auditory Discrimination Scores | | |
|---|---|---|---|---|---|
| | M.A. | I.Q. | Initial Mean | Final Mean | Difference |
| A | 3.3 | 27 | 51 | 45 | —6 |
| B | 2.8 | 40 | 42 | 47 | 5 |
| C | 3.5 | 48 | 47 | 49 | 2 |
| D | 3.0 | 31 | 44 | 48 | 4 |
| E | 3.1 | 46 | 47 | 50 | 3 |
| F | 5.8 | 67 | 57 | 57 | 0 |
| G | 5.0 | 50 | 61 | 66 | 5 |
| H | 2.8 | 29 | 42 | 43 | 1 |
| I | 3.6 | 35 | 46 | 45 | —1 |
| J | 3.1 | 32 | 51 | 53 | 2 |
| K | 3.2 | 36 | 50 | 50 | 0 |
| L | 4.0 | 47 | 55 | 59 | 4 |

Progress in both speech and word discrimination commensurate with the passage of 18 or more months was only indicated by Subjects G, L, C and E. These were discussed above. Subject F maintained the same discrimination score. Subject A's loss of six between the initial and final testing can be accounted for only on the basis of habitually disturbed communicative interaction in a structured situation.

The most frequently missed discriminations were pairs in which the differentiating element was in the final position. The pair *tree-three* was the sole exception. Six pairs were tied, two in each rank. The pairs in which most errors were made are listed in rank order:

1. cards-cars, beets-beads
2. gum-gun, tree-three
3. back-bat, cone-comb

The fact that the final sound discrimination words were most frequently missed was expected as the final sound or syllable in normal speech development is often slighted or omitted. This defect of final sounds is even more prevalent among slow learners.

A comparison of the discrimination scores with other samples was difficult because of the problem of matching. However, rough approximations were made to determine the performance levels achieved by this group. Scores were obtained from two groups of children, one consisting of retarded children, the other of normal preschool children. All of these children had readily intelligible speech. In addition to these two groups, norms established by Templin for age groups three to five were also used.[1] Her norms were obtained with a set of 58 pairs of words.

The retarded group consisted of 20 children with M.A.'s between 2.8 and 4.9 years. They were of varying etiologies with none definitely diagnosed as brain-damaged. They achieved a mean score of 58 correct responses out of 68 as compared to the final score of 50 obtained by the experimental group. The second group, consisting of 18 preschool children with C.A.'s between 3.5 and 4.5 years, obtained a mean score of 60 correct discriminations.

One set of norms obtained by Templin gave credit for two out of three correct responses. Her lowest C.A. group of 60 three year olds scored 50.8 correct out of 58. Using her scoring method and 58 pairs of

1. Personal correspondence with Dr. Mildred Templin, Assoc. Prof. at the Institute of Child Welfare, University of Minnesota. Thanks are also due Dr. Templin for permitting the duplicating of her Preschool Sound Discrimination Test.

pictures, the children of this study obtained a mean score of 47.0 in their final series of tests.

Each of the three groups used for comparison demonstrated progressive gains at each C.A. or M.A. level of two to three correct responses. These gains were achieved with the lowest mean score within 10 of the optimum score. On the other hand, a glance at scores obtained by the children in this study indicates the large gaps between their scores and the perfect score. Subjects B and H, for instance, with means of 42 correct out of 68 had high ceilings in which to augment their final scores.

All of the above comparisons are made with reservations because of the many variables. Nevertheless, one cannot help but note that with one exception, Subject G, the children in this study have vastly inferior auditory discrimination scores when measured against children with roughly approximate C.A.'s or M.A.'s. A perfect or near perfect score in this relatively simple discrimination test is usually obtained by children with C.A.'s or M.A.'s between five and six years. It is assumed that many of the children in this study will eventually be able to demonstrate increased ability in auditory discrimination, as, and if, mental functioning increases. However, gains were smaller than anticipated, particularly when one considers that the children in the study had a long period of therapy which stressed learning to listen. Normal attainment in auditory discrimination, as well as speech, would seem questionable for most of them. Follow-up for many years, with continuing evaluations and assessments, is indicated.

## CONCLUSIONS

There is an apparent, though possibly a concomitant, relationship in the speech development and the auditory word discrimination demonstrated by the retarded children in this study. Both functions are markedly delayed. One can infer that these communication dysfunctions are direct sequelae of their cortical lesions. On the other hand, the aberrant communication behavior could emerge from other sources as well as brain damage. The situational stresses to which these children are subject and the resultant anxieties seem to inhibit language functioning beyond the limitations imposed by their CNS impairments. The overlay of emotional reactions to parental anxiety and situational pressures makes it difficult to judge whether the aberrant behavior is typically that of the brain injured child or the adaptation to threatening situations with which the child cannot cope.

The comprehension and expression deficiencies of the brain-damaged child with intellectual dysfunctioning could be labeled aphasia if the mental retardation were secondary. However, the communication problems might also indicate to some degree a difficulty in auditory discrimination. DiCarlo and Amster (2) have suggested that a certain neurological deficit may generate sufficient noise level in the organism to prevent brain-damaged children from developing the important discrimination functioning even though there is threshold hearing. They further suggest that these noise levels take precedence over attention and response to hearing signals. Thus, progressive atrophy develops due to disuse through lack of attention to auditory stimuli. In many subjects of this study, the distraction and inattention may result from the inhibition of incoming sensory cues. This would certainly affect their speech and listening learning.

Until the solution of the primary difficulty, viz., aphasic, psychic, mental capacity, is realized, speech therapy has to continue to develop and maintain the child's awareness of speech. Further, there has to be stress laid on the child's appreciation of self. When a level of responsiveness conducive to direct speech habilitation is attained, then an intensive speech program can function with a greater hope of success. The longer the delay in speech habilitation, the greater is the anxiety the child demonstrates toward the speech act. He never realizes his optimum attainment of capacity in speech and intellectual functioning.

## BIBLIOGRAPHY


1. Carhart, R., "Auditory Training," in H. Davies, ed., *Hearing and Deafness.* New York: Murray Hill Books, 1947.
2. DiCarlo, L. M. and Amster, W. W. "Hearing and Speech Behavior among Children with Cerebral Palsy," in W. M. Cruickshank and G. M. Raus, eds., *Cerebral Palsy.* Syracuse University Press, 1955.
3. Doll, E. A. Mental Deficiency vs. Neurophrenia. *Amer. J. ment. Def.*, 57, 1953, 477-480.
4. Mecham, M. J. The Development and Application of Procedures for Measuring Speech Improvement in Mentally Defective Children. *Amer. J. ment. Def.* 60, 1955, 301-306.
5. Schlanger, B. B. Speech Examination of a Group of Institutionalized Mentally Handicapped Children. *JSHD*, 18, 1953, 339-349.
6. ---------- Speech Therapy Results with Mentally Retarded Children in Special Classes. *Train. Sch. Bul.* 50, 1953, 179-186.
7. Strauss, A. A. and Lehtinen, L. S. *Psychopathology and Education of the Brain-Injured Child.* New York: Grune and Stratton, 1947.
8. Strauss, A. A. Aphasia in Children. *Amer. J. phys. Med.* 33, 1954, 93-99.
9. Templin, M. C. Speech Development in the Young Child: 3. The Development of Certain Language Skills in Children. *JSHD*, 17, 1952, 280-285.

# In Memoriam

GUY P. BIBLE — 1882-1956

My first recollections of Guy Bible were those gained from having served as a member of the Board of Trustees under his leadership as its President. He always instilled in the feelings of the Board the urge to carry out the policy of The Training School at Vineland, New Jersey — "Happiness First, All Else Follows" — in making every decision.

My very brief association with Guy Bible gave me the desire to do something for the school which I am hopeful to accomplish. He asked me to serve as President; I accepted, at his request, solely to carry out his philosophy.

To me, Guy Bible was a great man, and I will try to serve the school the way he asked me to do.

It has been a privilege for me to have known him, and my personal acquaintanceship with him was much too short . . .

Bayard L. England

The passing of Guy P. Bible seems to many of us like the passing of an era. It was largely through his interest that I find myself at The Training School, and it was his guidance that showed me the way during the early years of my residence here. Those were the years of all the problems that arise whenever someone follows a beloved leader who had been associated with an organization for almost fifty years. We had a most intimate relationship during these years, and I was sorely concerned when Mr. Bible's health made it necessary for him to establish his home in Florida. On his few visits north in the years that followed, his continued interest and hopes for The Training School always were evident.

I know that many things have been accomplished since those days and that we are looking forward to an ever brighter future. This was made possible not only through the ability and foresight of those who now guide us, but because of the patient groundwork laid by Guy Bible during the previous years when he was a member of the Board of Trustees and its president.

All of us here will miss him. We think of him often and find so many things at The Training School which bear the mark of his work and interest. These are truly monuments to him, and we know he looks down upon us with the same understanding and affection as always. May we ever be successful in carrying out the dreams he had for our School and in extending the love he had for our children.

Walter Jacob

"The lives of great men all remind us of footprints on the sands of time."

This could well be said of Guy P. Bible, for he was an outstanding man who had lived his life in accordance with the teachings of the Master.

Mr. Bible was a devoted husband and father, a devout Christian and a true philanthropist. He found his greatest happiness in contributing to the happiness of others, and today his memory is revered and

honored by the many organizations, institutions, and charities with which he was identified.

The Training School at Vineland, New Jersey was his most favored institution. He served actively on the Board of Trustees as a member from 1929 and as its President from 1943 to 1953. A great humanitarian, he was devoted to the School and its goals, giving liberally of his time, energy, and leadership. He loved children and, quite naturally, The Training School children reciprocated his love. At Christmas time, when he played the role of Santa Claus at their party, he was a true hero to them, and they still remember him fondly and talk about his delightful contributions to their Christmas.

While actively affiliated with The Training School, Mr. Bible established the "Guy Bible Jr. Fund" in memory of his little son Guy who had died some years ago. To this fund he gave generously with the understanding that the money would be used exclusively for the recreational pleasures of the children. His instructions have been carefully carried out, and the children have always been most grateful for the kindness and generosity of their good friend.

A successful businessman, Mr. Bible had been General Manager of the Horace T. Potts Steel Company in Philadelphia until his retirement in 1947. In addition to his important duties in the United States, he made trips abroad to widen his knowledge of the Steel Industry. It was said of him — and this could be verified by the fine group of men with whom he was so closely associated — that had he been the sole owner of the plant instead of its manager, he could not have worked more hours, nor could he have been more interested in the success of the company.

As stated before, Guy P. Bible was also a devout Christian who expressed his love and loyalty for his church and fellowmen by his attendance and conscientious support of the church. During the first years following his retirement from active business life, he decided to devote more of his time to his church and welfare work. Soon the demand for his valuable assistance became so great that this work absorbed almost as much of his time and energies as his previous business activities. The doctor who had advised his retirement from business now recommended that he take a long vacation and really get the rest he needed. Mr. Bible and his good wife decided to follow this advice, and in 1949 they went abroad for three months, leisurely touring the European con-

tinent. While heading home, they stayed a few more days in England. There Mr. Bible suffered a slight injury to his back which necessitated a prolonged stay in London until he was able to make the ocean voyage.

Once at home, he felt better but his physical condition still left much to be desired. His doctor again advised complete rest and quiet to give his back the time needed for full recovery. But it would have been difficult to follow this advice if they remained in Philadelphia, for their friends were waiting to welcome them home with numerous social affairs in their honor. And so, Mr. and Mrs. Bible were again confronted with the necessity of making a decision. In order not to disappoint their friends, they made another trip, this time to Florida. But they found Daytona Beach such a delightful place that they remained through the winter. The gentle climate of Florida, the lovely gardens and flowers, and the delightful beach won them over completely. Soon, they reached another decision — to sell their Philadelphia home and take up permanent residence in Florida. They purchased a lovely home at Daytona Beach and for nearly three years thoroughly enjoyed their new-found leisure, which definitely prolonged Mr. Bible's life.

The children and staff of The Training School mourn his death, for he was loved and revered by these loyal friends whose lives were enriched by their association with him.

Mr. Bible was called to his eternal home on April 4, 1956. The farewell service was held at the Turner Funeral Home, Roxborough, Philadelphia. Beautiful flowers, quiet music, the presence of his beloved family and many of his devoted friends, the reading of the Scriptures and prayers by two of his close ecclesiastical friends made the service seem in perfect keeping with the ending of the last chapter of Mr. Bible's life.

Jesus said, "Let not your heart be troubled. In my Father's house are many mansions. I go to prepare a place for you, that where I am there ye may be also."

Alice M. Nash

## ANNUAL PARENTS DINNER ON MAY 5 IS GALA EVENT

As in years past, the annual Parents, Inc. dinner-dance held at Hotel Pierre in New York City on May 5 was a highly successful event.

One of the highlights of the evening was the presentation of a check clearing the mortgage on "Happiness Hall," a gift of Parents, Inc., to the children of The Training School. Richard E. Thomson, president of the parents' group, presented the check to Howard H. Melvin, treasurer of the school's Board of Trustees.

Pearl S. Buck, a trustee of the school, was the principal speaker. Other brief talks were given by Bayard L. England, the Board's president, and Dr. Walter Jacob, director of the school, who introduced Clifford P. Lockyer, the new superintendent. Morris Feld, dinner committee chairman, also acted as Master of Ceremonies. The Reverend Raymond E. Neff, district superintendent of the Methodist Church, gave the invocation.

Entertainment and music was under the direction of Peter Howard, star of stage, radio, and television. Several members of the cast of "My Fair Lady," a musical hit currently playing in New York, entertained the guests with a selection of songs.

The ballroom of the Hotel Pierre, the scene of the dinner-dance, was beautifully decorated with flowers from the school's greenhouse.

While their parents met at the Pierre, the hundreds of children at The Training School enjoyed a motion picture show followed by the special annual ice cream and cake treat through the courtesy of Parents, Inc.

## DR. JACOB AND DR. SCHLANGER AT AAMD CONVENTION

Dr. Walter Jacob, director of The Training School, and Dr. Bernard B. Schlanger, speech pathologist, attended the National Convention of the American Association of Mental Deficiency held at Richmond, Virginia during the first week of May.

Dr. Schlanger presented a paper entitled "An Investigation of Brain-Damaged Retarded Children With Delayed Oral Language and Speech" at the Psychological Section of the Convention.

**AT FAREWELL DINNER** held in "Happiness Hall" on April 25, Daniel F. Graham, superintendent, who left The Training School on May 1, and Mrs. Graham were guests of honor. At left is Mrs. W. Howard Sharp, president of Board of Visitors. Standing are Judge Francis A. Stanger, member of Board of Trustees, and Dr. Walter Jacob, director of the school.